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ENGINEERING PLANS AND OPERATING PROCEDURES FOR THE CONTINUATION OF THE SANITARY LANDFILL OPERATION ON THE COMPANY PROPERTY LOCATED IN LOWER POTTSGROVE TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

IDENTIFICATION NO. 100544

DESIGNED BY: K. P. HOCHSCHWENDER, P. E.

DATE: APRIL 2, 1970

THE FIRESTONE TIRE & RUBBER COMPANY

ENGINEERING PLANS FOR SOLID WASTE DISPOSAL

I. Background Data

The landfill operation proposed in this application is a continuation of a present operation and is for the sole purpose of disposal of industrial solid wastes produced in the course of manufacturing operations at the plant of The Firestone Tire & Rubber Company located in Lower Pottsgrove Township, Montgomery County. The landfill site is located totally within the boundaries of The Firestone Tire & Rubber Company property and is located in the southwest portion of the property. (See Firestone Tire & Rubber Company drawing PRAA 16900, Revision 2 marked Exhibit "A").

Since the site will be used for disposal of Firestone plant generated industrial wastes only, population is not a factor. Estimated weights and volumes of the various products to be disposed, based on projected plant operations, are shown in Table I.

TABLE I

Estimated Solid Industrial Waste Disposal

Type of Waste	Cu. Yds. Per Year	Tons Per Year	Frequency Of Disposal
Wood	900	450	Daily
Paper	1,800	250	Daily
Rubber	2,400	300	Daily
Plastics	54	36	Daily
Softener Waste (1)	480	500	Yearly
Resin Lagoons (2)	16,667	17,000	Yearly
Fly Ash	62	24	Monthly
Totals	22,363	18,560	

Average Daily Volume -- 86 Cu. Yds.
Maximum Daily Volume (3) -- 420 Cu. Yds.
Ratio of Maximum Daily Volume to Average Daily Volume 4.9:1.

Notes:

1. Softener waste consists of settled solids from sludge blow down of hot lime - soda process boiler feed water softener.

2. Solids from resin lagoons consist of settled polyvinyl chloride resin particles and small amounts of synthetic rubber particles. The material is insoluble, inert, mixes and compacts well with other wastes and soils, and does not inhibit the growth of vegetation.

3. Maximum daily volume is estimated for the highest rate during cleaning of resin lagoons.

A. General Operating Standards

1. Access roads will be provided per drawing marked Exhibit A. Roads to be adequately surfaced with gravel for all-weather use.

2. Solid wastes will be measured by volume of the collection vehicle and recorded.

3. The plant has an industrial FM radio system connected to a radio room which has an attendant 24 hours per day, 7 days per week. The nearest in plant telephone is located at the area indicated as resin bulk loading area.

4. The landfill site is protected by the in-plant fire protection system consisting of a 150,000 gal. elevated tank, and a 500,000 gal. reservoir with three fire pumps. The nearest hydrant is located on the drawing marked Exhibit "A". There is a trained in-plant fire brigade under the supervision of the plant protection department which has adequate equipment for the fighting of all in-plant fires. In addition there are set procedures and agreements with local municipal volunteer fire companies to provide additional help when required.

A. General Operating Standards Continued

5. The site is bordered by the plant fence (12'-0 high cyclone) or the Schuylkill River. There is no access other than locked gates in the fence. The gate at the access road to the site is open from the plant area from 7 a.m. to 3 p.m. five to six days per week when work is being done on the landfill. Only authorized persons are permitted in the area. There is no access to the area except through the plant gate.

6. Unloading is done by authorized employees or authorized outside contractors under the supervision of the Manager of Buildings and Grounds.

7. No salvage or reclamation of materials is done.

8. Since the materials are inert and not of a sanitary waste nature, no health hazard or nuisance problems requiring vector control procedures are anticipated.

9. The operation of the landfill comes under the corporate safety program as administered by the Plant Manager of Safety and Training. All supervisors involved attend monthly safety meetings and make monthly safety contacts with all employees. General and specific safety procedures are prepared and reviewed on materials handling, operation of equipment, and other pertinent items.

10. Employees use permanent sanitary facilities located in all factory buildings. Included are locker and shower facilities.

11. The supervisor of the Building and Grounds Department is responsible for the maintenance of daily logs.

B. Standards for Sanitary Landfill

1. Design

e. The overall plot plan of the Firestone property is shown on Firestone Tire & Rubber Company drawing PAA 16300 Revision 2 which is attached (marked Exhibit "A").

B. Standards for Sanitary Landfill Continued

a. Continued -
Grade elevations are shown as are various borrow areas and their estimated capacity, location of fences, gates, wells, utilities and other pertinent information. Drawing PRB-9145 marked Exhibit "B" shows a profile of the landfill area indicating existing lifts and proposed new lifts.

The general plan for the landfill operation will be as follows:

(1) Starting at the east end of the site, a new lift will be placed going in a westerly direction to the point shown on the profile (Exhibit "B").

(2) Cover soil will be taken from the borrow area at the west end of the site. The cover shall be excavated down to original grade from the mass of clean fill in that area forming trenches for additional placement of solid wastes in the process.

(3) These newly formed areas shall be utilized for filling last as shown in the profile.

(4) Adequate excavated cover soil must be stockpiled to provide the cover per paragraphs 10 and 15.

(5) If additional cover is required, it shall be taken from the indicated area in the northern part of the plant property.

(6) The completed site shall then be prepared for use as paved parking area, paved outdoor storage or as a plant building site.

b. Soil Geological Characteristics - The company plant site lies over rock layers which are known as the Brunswick Formation. They are composed of very fine grained sandstones, shales and silt stones. This formation is clearly described in a letter from Arthur A. Socolow, State Geologist to J. R. Hilt and dated February 7, 1969. While this letter was sent

b. Continued -
for the purpose of providing an expert's opinion on the feasibility of drilling additional wells on the Firestone property, the information contained in it is pertinent to this application. Copy of the letter is attached and marked Exhibit "C". We also cite the publication Ground-Water Resources of the Brunswick Formation in Montgomery and Berks Counties, Pennsylvania, by Stanley M. Longwill and Charles R. Wood, Bulletin W22, Commonwealth of Pennsylvania, Department of Internal Affairs, Bureau of Topographic and Geologic Survey, for additional description of the underlying geology.

The overlying subsoil is mainly sandy clay with minor quantities of clay and fine to coarse sand and gravel, this is covered by variable thicknesses of topsoil. The material is typical for all areas of the property as has been shown by various test borings and excavations for plant foundations. Attached also are copies of drawings No. 51049-1 and 2 (Exhibit "D") showing the results and locations of various test holes. The drawings were part of a water study prepared for Firestone by Albright and Friel, Inc. on July 16, 1951. Test holes #1 and #2 are located in close proximity of the site and are representative of ground water level and soil conditions in the area.

Various wells drilled on the company property to depths ranging 265 ft. to 493 ft. indicate consistent underground formations which are designated by the well driller as "sandstone","sandrock", and "sandrock hard". Of particular interest is #9 well which is closest to the landfill site. All wells are checked regularly for purity since some are used for in-plant domestic water, and the others for high purity process water. Well #9 is used for high purity process water and is checked regularly by the analytical laboratory of the Chemical Plant. In accordance with paragraph 3 of Mr. Socolow's letter (Exhibit "C"), a subsurface water flow from the river to the wells is indicated and those wells, particularly #9 well, will serve as ground water monitoring wells.

c. & d. Cover Material Characteristics and Availability - Cover material is available from two areas: one in the immediate landfill site and the other on the northern part of the property. The material is subsoil of excellent quality which compacts well and does not crack. The material originated from excavations for factory buildings and foundations and had been placed in the areas shown and is available in quantities shown on the general plan (Exhibit "A").

e. Ground Water Pollution -
Test hole data (Exhibit "D") indicate adequate cover over rock strata and ground water levels. No fill will be placed into water or flood plane. Working areas will be dyked to prevent uncontrolled surface water runoff and finished areas will be graded in accordance with drawing PRB-9145 marked Exhibit "B".

2. Equipment -
Daily waste is hauled from the factory by Dempster-Dumpster using 2, 3 or 6 cu. yd. buckets as required. Placing and compacting is performed by a D-8 bulldozer. Yearly lagoon solids are hauled by a hauling contractor to the site in 8 cu. yd. dump trucks. Standby equipment is available from local contractors.

3. Access Roads -
a. A paved plant road goes to the entrance gate at the site.

b. Gravel surfaced all-weather roads are maintained within the site and provide access to the unloading area.

4. Measuring Facilities -
Since the site is for industrial waste only, measurement is by volume of the conveying vehicles. Volume is recorded in the log.

5. Unloading -
Collection vehicles shall be unloaded promptly in areas specified and in an area within 30 ft. of the working face. All daily waste is unloaded by the attendant. Wastes not unloaded directly by the attendant shall be unloaded only at the direction of the attendant.

6. Size of Working Face -
The size of the working face shall be restricted to an area no larger than can be compacted daily with available equipment.

7. Blowing Litter Control -
Material is bulk in nature or damp granular solids. The site is bounded by the plant fence and tree lines. The site shall be policed regularly and any litter removed from fences, roads and tree lines and incorporated into solid waste cells.

8. Spreading and Compacting Solid Waste -
Daily waste is bulky in nature and treated per item 15. Lagoon waste requires special handling. This material has a high moisture content as removed from the lagoons which makes handling and compacting difficult. Lagoon waste shall be placed on the site only during periods of dry weather. The waste shall be placed on the unloading area to a depth of approximately 3-4 ft. The material shall be air dried for 2 to 3 days until it is easily worked. The material shall then be combined with other waste, placed in cells, compacted, and covered with a uniform 6 in. layer of cover material and compacted.

9. Thickness of Cells -
Individual cells shall be no greater than 8 ft. thick.

10. Daily Cover -
Daily cover will be provided for items not classified as bulky and will be placed on applicable areas in a uniform 6" compacted layer at the end of each working day.

11. Intermediate Cover -
An intermediate layer of cover material, compacted to a minimum uniform depth of 1 ft. and having characteristics as described in Section 1 c & d shall be placed on completed lifts in areas where there is clear intention to place another lift on top within one year.

12. Final Cover -
A final layer of cover material, compacted to a minimum uniform depth of 2 ft. and having the characteristics as described in section 1 c & d shall be placed over the entire surface of each portion of the final lift. The final cover layer shall be completed within one week after placement of solid waste in the final lift.

13. Equipment -
Standby equipment shall be available in case of a major breakdown.

14. Sewage Solids, Liquids and Hazardous Waste -
Sewage solids, liquids and hazardous wastes shall not be deposited in the landfill.

15. Bulky Waste -
The materials to be deposited in the landfill with exception of lagoon solids as discussed in paragraph 8 are essentially all bulky wastes. Bulky waste shall be incorporated in cells and shall be compacted and covered within one week.

16. Burning -
Open burning of solid waste shall not be allowed at the sanitary landfill.

17. Dust Control -
There is essentially no dust involved in the wastes going to the site. Dust from traffic and covering operations shall be controlled by the application of calcium chloride to roadways or sprinkling.

18. Placement in Ground Water -
No solid wastes shall be placed in intermittent or continuous contact with ground water table.

19. Drainage of Surface Water -
Surface water drainage shall be controlled in working areas by the placement of adequate temporary dykes. Final grading of the surface area shall provide a slope of not less than one percent but not exceeding 15 percent except where building structures or paved parking areas are to be located over the completed fill.

20. Final Grading -
Completed portions of the landfill shall be graded per paragraph 19 within two weeks of completion. Appropriate seeding to stabilize the final cover shall be done as soon as weather permits except where future use of the area would make this impractical.

21. Operational Records and Plan Execution -
A daily log shall be maintained and shall include the following information:

1. Types and quantities of solid waste received.
2. The portion or area of the landfill used.
3. Special provisions made for hazardous waste disposal.
4. Any deviation from the operating plans and specifications.

22. Continued Maintenance after Operations Have Ceased.
The site shall be maintained for at least one year after completion of the operation to repair cracks, fissures, areas where settlement occurs, or damage to grades for control of surface water flow.